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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	10/649,577	
	Filing Date	8/26/2003	
	First Named Inventor	Douglas A. Hawks	
	Art Unit	2822	
	Examiner Name	Trinh, Michael Manh	
Total Number of Pages in This Submission	28	Attorney Docket Number	0140153

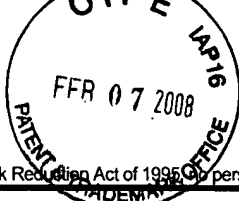
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Firm or Individual name	Farshad Farjami, Esq., Reg. No. 41,014
Signature	Farjami & Farjami, LLP
Date	February 4, 2008

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FEE TRANSMITTAL For FY 2008 <small>Effective on 12/8/2004. Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).</small>		Complete if Known		
		Application Number	10/649,577	
		Filing Date	8/26/2003	
		First Named Inventor	Douglas A. Hawks	
		Examiner Name	Michael Manh Trinh,	
<input type="checkbox"/> Applicant Claims small entity status. See 37 CFR 1.27		Art Unit	2822	
TOTAL AMOUNT OF PAYMENT		(\$) 510.00	Attorney Docket No.	0140153

METHOD OF PAYMENT (check all that apply)

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☒ Deposit Account Deposit Account Number: 50-0731 Deposit Account Name: Farjami & Farjami LLP

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FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	310	155	510	255	210	105	
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
- 20 or HP =	x	=				

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 3 or HP =	x	=	

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x	=	

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other: \$510 Appeal Brief Filing Fee

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	41,014	Telephone	(949) 282-1000
Name (Print/Type)	Farshad Farjami, Esq.	Date	2/4/08		

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Application Serial No. 10/649,577
Attorney Docket No.: 0140153

AK
JLW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Hawks, et al.**

Serial No.: **10/649,577**

Filed: **August 26, 2003**

For: **Methods Suitable for Forming a
Microelectronic Device Package**

Art Unit: 2822

Examiner: Trinh, Michael Manh

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This is an Appeal from the Examiner's Final Rejection of claims 1, 2, 5-8, 16, 17, and 20-28. The Final Rejection issued on October 5, 2007. The Notice of Appeal was filed in the U.S. Patent and Trademark Office on January 4, 2008.

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REAL PARTY IN INTEREST

The real party in interest is Skyworks Solutions, Inc.

RELATED APPEALS AND INTERFERENCES

There are no related Appeals or Interferences.

STATUS OF CLAIMS

Claims 1-2, 5-8, 16-17, and 20-28 are pending, and claims 3-4, 9-15, and 18-19 were canceled in previous amendments. Claims 1-2, 5-8, 16-17, and 20-28 have been finally rejected in a Final Rejection dated October 5, 2007. This Appeal is directed to the rejection of claims 1-2, 5-8, 16-17, and 20-28 which appear in the attached "Appendix of Claims on Appeal."

STATUS OF AMENDMENTS

No claim amendments have been entered after issuance of the Final Rejection of October 5, 2007.

SUMMARY OF CLAIMED SUBJECT MATTER

A. Claim 1

Independent claim 1 defines a method (e.g., process 200 in Figure 2) for forming a package for an electronic device (e.g., packaged device 100 including device 150 in Figure 1). The method includes a step of attaching a removable material (e.g. removable tape 310 in Figure 3) to a surface of a conductive material (e.g., bottom surface 320 of frame 300 in Figure 3), where the removable material comprises a soluble adhesive. *See*, e.g., page 5, paragraph [0033], page 6, paragraph [0034], and Figures 2 and 3 of the present application. The removable material can be, for example, a polyimide material and a water soluble adhesive. *See*, e.g., page 5, paragraph [0033]. The conductive material can be, for example, a metal frame. *See*, e.g., page 5, paragraph [0029]. For example, the metal frame can be a leadframe. *See*, e.g., page 4, paragraph [0027]. The method further includes a step of forming isolated conductive features (e.g., electrical connectors 120 and base 130 in Figure 4) within the conductive material. *See*, e.g., page 6, paragraph [0035] and Figures 2 and 4. For example, features 120 and 130 can be formed by patterning a surface of frame 300 and etching portions of frame 300 through to tape 310. *See*, e.g., page 6, paragraph [0035]. For example, connector 120 and base 130 can be formed of copper metal. *See*, e.g., page 5, paragraph [0029] of the present application.

The method further includes a step of forming a die attach pad (e.g., base 130 in Figures 5 and 6) within the conductive material. *See*, e.g., page 6, paragraph [0035], page

7, paragraph [0039], and Figures 2, 4, and 5 of the present application. The method further includes a step of coupling the electronic device (e.g., device 150 in Figure 5) to the die attach pad. *See*, e.g., page 7, paragraph [0039] and Figures 2 and 5. The method further includes a step of attaching an encapsulant (e.g., encapsulant 110 in Figure 8) to the isolated conductive features, the die attach pad, the electronic device, and the removable material. *See*, e.g., page 8, paragraph [0043] and Figures 2 and 8 of the present application. The method further includes a step of removing the removable material (e.g., tape 310 in Figure 8) from the conductive features, the die attach pad, and the encapsulant by dissolving the soluble adhesive, thereby forming the package for the electronic device. *See*, e.g., page 8, paragraph [0044] and Figure 2. For example, tape 310 (i.e., the removable material) can be removed by immersing tape 310 in hot water. *See*, e.g., page 8, paragraph [0045].

B. Claim 7

Claim 7 depends from claim 1 and specifies that the removable material (e.g., removable tape 310 in Figure 3) is a water soluble adhesive. *See*, e.g., page 8, paragraph [0045] of the present application.

C. Claim 28

Independent claim 28 defines a method substantially similar to that defined by independent claim 1, with a difference being that claim 28 specifies that the step of

attaching an encapsulant to the isolated conductive features is performed before performing a singulation process to separate the package and the step of removing the removable material is performed after the singulation process has been performed. *See*, e.g., page 8, paragraph [0044] of the present application.

GROUND(S) OF REJECTION TO BE REVIEWED ON APPEAL

- A. Claims 1-2, 5-6, 16, and 20-27 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,001,671 to Joseph Fjelstad (hereinafter “Fjelstad”) taken with U.S. Patent No. 4,944,087 to Vincent R. Landi (hereinafter “Landi”) and U.S. Patent No. 5,218,759 to Juskey et al. (hereinafter “Juskey”).
- B. Claims 7-8 and 17 under 35 USC §103(a) as being unpatentable over Fjelstad, Landi, and Juskey, and further of U.S. Patent No. 6,111,199 to Wyland et al. (hereinafter “Wyland”) and U.S. Patent No. 5,972,234 to Weng et al. (hereinafter “Weng”).
- C. Claim 28 under 35 USC §103(a) as being unpatentable over Fjelstad, Landi, and Juskey, further taken with U.S. Patent No. 4,530,152 to Roche et al. (hereinafter “Roche”).

ARGUMENT

A. Rejection of claims 1-2, 5-6, 16, and 20-27 under 35 USC §103(a) as being unpatentable over Fjelstad taken with Landi and Juskey.

Appellant respectfully submits that the present invention, as defined by independent claim 1, is patentably distinguishable over Fjelstad, Landi, and Juskey, either singly or in combination.

Fjelstad is directed to methods for manufacturing a semiconductor package having a sacrificial layer. Fjelstad specifically discloses a process for manufacturing a semiconductor chip package including patterning conductive pads 110' and conductive region 115' in conductive layer 101', which is situated on sacrificial layer 100'. *See, e.g.*, column 5, lines 27-37 and Figures 2A and 2B of Fjelstad. In Fjelstad, the addition of dielectric polymer sheet 100' allows a multi-chip module to have conductive paths 118' interconnecting at least some of pads 110', thereby allowing signals to be transferred between the chips. *See, e.g.*, column 5, lines 54-60 and Figure 2F of Fjelstad. Fjelstad further discloses bonding semiconductor chip 120' to conductive region 115', electrically connecting semiconductor chip 120' to conductive pads 110' by wirebonding wires 130', and encapsulating conductive pads 110', conductive region 115', semiconductor chip 120', and wirebonding wires 130'. *See, e.g.*, column 5, lines 37-46 and Figures 2C and 2D of Fjelstad.

In Fjelstad, portions of dielectric polymer sheet 100' are then removed by chemical etching or laser ablation operations so as to expose pads 110' and conductive region 115'.

See, e.g., Fjelstad, column 5, lines 46-49. Fjelstad further discloses that if a wiring layer is not needed, the entire sacrificial layer 100' may be removed by chemically dissolving the sheet. *See, e.g.*, Fjelstad, column 5, lines 60-65. Thus, in Fjelstad, if a wiring layer is needed, portions of dielectric polymer sheet 100' underlying pads 110' and conductive region 115' are removed by etching or laser ablation, while portions of dielectric polymer sheet 100' that provide a surface for the wiring layer are not removed. However, Fjelstad fails to disclose attaching a removable material to a surface of a conductive material, where the removable material comprises a soluble adhesive, and removing the removable material from conductive features, die attach pad, and encapsulant by dissolving the soluble adhesive, as specified in independent claim 1. In fact, Fjelstad does not even mention attaching a removable material to a surface of a conductive material. Thus, in Fjelstad, the sacrificial layer must be removed by actually dissolving it, whereas in the invention as defined by independent claim 1, the removable material is removed by dissolving the soluble adhesive in, for example, hot water.

On page 4 of the Final Rejection dated October 5, 2007, the Examiner states that "the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to attach the removable material 100' to the film of conductive material 101' of Fjelstad by employing a removable material comprising a soluble adhesive for attaching to the conductive material, as taught by Landi and Juskey." On page 4 of the Final Rejection dated October 5, 2007, the Examiner further states that "[t]his is also because of art recognized alternative and equivalent for substitution with

the desirability to simplify and easily facilitate the removal of the removal material comprising the soluble adhesive from the encapsulated device by simply dissolving the adhesive in a solvent. However, if a wiring layer is needed, only portions of polymer sheet 100' are removed such that only pads 110' and central conductive region 115' are exposed. If a soluble adhesive were utilized to attach removable material 100' to conductive material 101' as suggested by Examiner, however, Appellant submits that it would not be possible to dissolve only portions of removable material 100' in a solution without undesirably dissolving (i.e., removing) all of the removable material.

Thus, Appellant respectfully submits that the Examiner's suggestion of utilizing a soluble adhesive to attach removable material 100' to conductive material 101' in Fjelstad would not provide a sufficient benefit or would even work in Fjelstad. In Fjelstad, when a wiring layer is needed, removable material 100' must necessarily have a sufficiently strong bond with conductive material 101' to allow portions of removable material 100' to remain attached to an underlying wiring layer after portions of the removable material underlying pads 110' and central conductive region 115' have been removed. Thus, for the reasons stated above, Fjelstad's approach in fact teaches away from the invention of claim 1, wherein a removable material comprising a soluble adhesive is attached to a conductive material and the removable material is removed by dissolving the soluble adhesive. Thus, for the above reasons, Appellant respectfully submits that the present invention, as defined by independent claim 1, is patentably distinguishable over Fjelstad.

The Examiner has cited Landi as disclosing a removable material comprising a soluble adhesive. Landi specifically discloses manufacturing curved body/metallic pattern 10 including preparing a laminate of a flexible substrate to copper using an appropriate adhesive, creating flexible circuit 18, forming metallic pattern 14 on flexible substrate 16 to create flexible circuit 18, placing flexible circuit 18 into mold 20, forming molded object 24, removal of molded object 24 from mold 20, and rinsing molded object 24 to remove flexible substrate 16, thereby resulting in a 3-dimensional plastic curved body (e.g. 3-dimensional plastic body 12) with a metallic pattern imbedded into its surface. *See*, e.g., column 4, lines 19-53 and Figures 1, 2, 4, and 5 of Landi. Thus, in Landi, the adhesive, which can be polyimide, epoxy, phenolic, or other thermoset resins, is removed the molded plastic by using a chemical agent, solvent, or high temperature to remove the flexible substrate. *See*, e.g., column 5, lines 28-32 of Landi.

Thus, in Landi, 3-dimensional plastic body 12 provides support for metallic pattern 14 after the metallic pattern has been transferred from flexible substrate 16. Thus, flexible substrate 16 only has to provide support for metallic pattern 14 until it (i.e. metallic pattern 14) has been transferred to 3-dimensional plastic body 12. In contrast, removable material 100' disclosed in Fjelstad needs to be sufficiently bonded to conductive layer 101' to enable a wiring layer subsequently formed from conductive layer 101' to remain attached to portions of removable material 100' after other portions of removable material 100' have been removed to expose pads and a central conductive region. Thus, Appellant submits that Landi's method of using an adhesive to attach

copper to a flexible substrate would not work in Fjelstad for removal of only portions of material 100'.

Thus, the purpose and requirements of the removable material as disclosed in Fjelstad is significantly different than the flexible substrate disclosed in Landi. As such, Appellant respectfully submits that a person of ordinary skill in the art, at the time the invention defined by independent claim 1 was made, would not have found a sufficient advantage to combined Landi with Fjelstad, as suggested by the Examiner. Furthermore, as discussed above, Fjelstad's approach teaches away from attaching a removable material comprising a soluble adhesive to a conductive material and removing the removable material by dissolving the soluble adhesive, as disclosed in independent claim 1.

The Examiner has also cited Juskey as disclosing a removable material comprising a soluble adhesive. Juskey specifically discloses attaching substrate 12 of assembly 16 to temporary support substrate 18 by using adhesive 19 and removing temporary support substrate 18 from assembly 16 by cleaving the temporary bond formed between temporary support substrate 18 and substrate 12 after a molding operation. *See*, e.g., column 2, lines 45-58 and Figures 1 through 4 of Juskey. Juskey further disclosing that other methods for removing the temporary support substrate, such as dissolving or degrading the adhesive bond with chemical materials, may also be used. *See*, e.g., column 3, lines 40-43 of Juskey. In Juskey, the goal in bonding substrate 12 to temporary

support substrate 18 is to achieve a temporary bond that can be easily cleaved after the molding operation is complete. *See*, e.g., column 2, lines 51-54 of Juskey.

In contrast to Juskey, removable material 100' disclosed in Fjelstad needs to be sufficiently bonded to conductive layer 101' to enable a wiring layer subsequently formed from conductive layer 101' to remain attached to portions of removable material 100' after other portions of removable material 100' have been removed to expose pads and a central conductive region. Thus, Appellant submits that Juskey's method of using an adhesive to attach substrate 12 to temporary support substrate 18 would not work for removal of only portions of removal material, as disclosed in Fjelstad.

Thus, the purpose and requirements of the removable material as disclosed in Fjelstad is significantly different than the temporary support substrate disclosed in Juskey. As such, Appellant respectfully submits that a person of ordinary skill in the art, at the time the invention defined by independent claim 1 was made, would not have found a sufficient advantage to combined Juskey with Fjelstad, as suggested by the Examiner. Thus, for the above reasons, Appellant respectfully submits that, at the time the invention, as defined by independent claim 1 was made, a person of ordinary skill in the art would not have a sufficient reason or be sufficiently motivated to combine Fjelstad with Landi and Juskey as suggested by the Examiner.

For the foregoing reasons, Appellant respectfully submits that, at the time the invention defined by independent claim 1 was made, the invention would not have been obvious to a person of ordinary skill in the art by Fjelstad, Landi, and Juskey, either singly

or in combination. Thus, independent claim 1 is patentably distinguishable over Fjelstad, Landi, and Juskey and, as such, claims 2, 5-6, 16, and 20-27 depending from independent claim 1 are, *a fortiori*, also patentably distinguishable over Fjelstad, Landi, and Juskey for at least the reasons presented above and also for additional limitations contained in each dependent claim.

B. Rejection of claims 7-8 and 17 under 35 USC §103(a) as being unpatentable over Fjelstad, Landi, and Juskey, and further of Wyland and Weng.

As discussed above, independent claim 1 is patentably distinguishable over Fjelstad, Landi, and Juskey. Dependent claim 7 further specifies that the removable material specified in independent claim 1 is a water soluble adhesive. On pages 4 and 5 of the Final Rejection dated October 5, 2007, the Examiner states that “[t]he references of Fjelstad and Landi ... lacks mentioning about a water-soluble adhesive (as in claims 7-8, 17); deionized water for removing (as in claim 8).” The Examiner has cited Wyland as disclosing forming a removable adhesive resin film on a substrate, wherein polyimide, alkali-soluble resin, or water-soluble resin are alternatively used for forming the adhesive resin film.

Wyland specifically discloses package 320 including ring 322, which is mounted on substrate 324 underneath leads 321I and 321J to support each lead during wire bonding so as to *prevent the leads from deforming due to pressure applied by the wire bonding machine*. See, e.g., column 7, lines 33-36 and Figure 3B of Wyland. In Wyland,

ring 322 is not attached, either permanently or temporarily to the leads, but merely keeps the leads from collapsing during wire bonding. *See, e.g.*, column 7, lines 44-48 and Figure 3B of Wyland. In Wyland, ring 322, which can include an adhesive that can be, for example, a water-soluble resin composition, can be dissolved in a solvent after wire bonding. *See, e.g.*, Wyland, column 7, lines 48-67 and column 8, lines 1-3.

However, as discussed above, Fjelstad teaches away from attaching a removable material comprising a soluble adhesive to a conductive material and removing the removable material by dissolving the soluble adhesive, as disclosed in independent claim 1. Furthermore, moisture in the environment might cause a water soluble adhesive to dissolve and, thereby, cause the dielectric polymer sheet in Fjelstad to unintentionally separate from a wiring layer when the wiring layer was utilized. Thus, Fjelstad also teaches away from utilizing a water soluble adhesive to attach the dielectric polymer to a conductive layer.

Moreover, Appellant respectfully submits that the structure and use of ring 322 is significantly different than the sacrificial layer in Fjelstad, the flexible substrate in Landi, and the temporary support substrate in Juskey. In particular, the sacrificial layer in Fjelstad is utilized to protect bottom surfaces of conductive pads and a conductive region from encapsulant and also to provide support for a wiring layer if an wiring layer is utilized, the flexible substrate in Landi is utilized to form and transfer a circuit pattern to a cured mold compound, and the temporary support substrate is utilized to protect the bottom surface of a carrying substrate from mold compound. In contrast, ring 322 is

mounted on a substrate under leads to prevent the leads from deforming due to pressure applied to the leads by a wire bonding machine. Also, in Fjelstad, the sacrificial layer comprises a dielectric polymer sheet (e.g. dielectric polymer sheet 100') having a conductive layer (e.g. conductive layer 101') on one surface, while ring 322 in Wyland can comprise, for example, filler particles (such as sand particles) dispersed in an adhesive. As such, Appellant respectfully submits that there is no sufficient reason or motivation for a person of ordinary skill in the art at the time the invention defined by claim 7 was made, to combine Fjelstad, Landi, Juskey, and Wyland as suggested by the Examiner.

The Examiner has also cited Weng as disclosing a removable material for an electronic device comprising a polymeric-base material and a water soluble adhesive, wherein removing the removable adhesive is performed with deionized water (as pure water). Weng is directed to splatter-free and debris-free wafer marking process in which a marked polymeric tape is first mounted onto a wafer surface which is then etched by either a dry etchant or a wet etchant to reproduce the mark in the wafer surface. Weng specifically discloses process 10 including step 60, in which a polymeric based tape is removed from the surface of the wafer (or the electronic substrate) to produce a wafer marked with the desirable identification mark. *See*, e.g., column 5, lines 27-30 and Figure 1 of Weng.

However, as discussed above, Fjelstad teaches away from attaching a removable material comprising a soluble adhesive to a conductive material and removing the

removable material by dissolving the soluble adhesive, as disclosed in independent claim

1. Furthermore, as discussed above, moisture in the environment might cause a water soluble adhesive to dissolve and, thereby, cause the dielectric polymer sheet in Fjelstad to unintentionally separate from a wiring layer when the wiring layer was utilized. Thus, Fjelstad teaches away from utilizing a water soluble adhesive to attach the dielectric polymer to a conductive layer.

Moreover, the debris-free wafer marking method disclosed in Weng is completely unrelated to the method of manufacturing a semiconductor chip package disclosed in Fjelstad, the method of making a curved plastic body with a circuit pattern disclosed in Landi, the temporary support substrate disclosed in Juskey, or an integrated circuit package using a gas to insulate electrical conductors as disclosed in Wyland. Thus, Appellant respectfully submits there is a lack of sufficient reason or advantage to be achieved in combining Fjelstad, Landi, Juskey, Wyland, and Weng as suggested by the Examiner.

For the foregoing reasons, Appellant respectfully submits that, at the time the invention defined by dependent claim 7 was made, the invention would not have been obvious to a person of ordinary skill in the art by Fjelstad, Landi, Juskey, Wyland, and Weng, either singly or in any combination thereof. Thus, claim 7 is patentably distinguishable over Fjelstad, Landi, Juskey, Wyland, and Weng and, as such, claim 8 depending from claim 7 is, *a fortiori*, also patentably distinguishable over Fjelstad, Landi,

Juskey, Wyland, and Weng for at least the reasons presented above and also for additional limitations contained in the dependent claim.

C. Rejection of claim 18 under 35 USC §103(a) as being unpatentable over Fjelstad, Landi, and Juskey, further taken with Roche.

Independent claim 28 includes similar limitations as independent claim 1. Thus, for similar reasons as discussed above, independent claim 28 is also patentably distinguishable over Fjelstad, Landi, and Juskey. In addition to the limitations in independent claim 1, independent claim 28 specifies removing the removable material from conductive features and encapsulant after the singulation process is performed to separate the package. In contrast, Fjelstad discloses dicing the packages into either individual packages or multichip packages after portions of polymer sheet 100' are removed to expose pads 110' and central conductive region 115'. *See, e.g.,* Fjelstad, column 5, lines 46-51. Landi does disclose an electronic device package and Juskey does not mention a singulation process.

Roche specifically discloses depositing thin conductive layer 6 of low melting point alloy on metal substrate 7, forming metal connection areas 3 and 4 on alloy layer 6, positioning chip 1 on connection area 4, connecting chip 1 to connection areas 4 by wires 2, and encapsulating chip 1, wires 2, and connection areas 3 and 4 with hardenable resin 5. *See, e.g.,* column 2, lines 60-68, column 3, lines 1-61 and Figures 1, 2, and 3 of Roche. In Roche, alloy layer 6 is melted by heating it to a relatively low temperature in order to

remove temporary metal substrate 7. *See, e.g., Roche*, column 3, lines 62-64. However, Roche fails to disclose attaching a removable material comprising a soluble adhesive to a surface of a conductive material, as specified in independent claim 28.

Additionally, Roche states that melting of the alloy layer also leaves a film of tin-lead alloy on the exposed surfaces of the connection areas, so that the tinning operation normally required prior to soldering on the external connections is not required in this instance. *See, e.g., Roche*, column 4, lines 9-13. Thus, Roche teaches away from attaching a removable material comprising a soluble adhesive to a conductive material by dissolving the soluble adhesive, since a soluble adhesive does not provide the advantage of eliminating a tinning operation that is achieved in Roche by melting a tin-lead alloy film.

In Roche, each component is separated from the others after encapsulation by sawing or other cutting technique either before or after removal of the temporary substrate. *See, e.g., Roche*, column 4, lines 20-24. On page 6 of the Final Rejection dated October 5, 2007, the Examiner states that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the removable material of Fjelstad either after a singulation process to separate the package or prior to a singulation process as alternatively taught by Roche.”

However, as discussed above, Fjelstad discloses dicing the packages into either individual or multichip packages after removing portions of dielectric polymer sheet 100' (i.e., sacrificial material) by chemical etching or laser ablation operations so as to expose

pads 110' and conductive region 115'. As is known by one of ordinary skill in the art, a masking step is required to selectively remove portions of dielectric polymer sheet 100'. Appellant respectfully submits that performing the required masking step on the wafer is significantly easier and more cost effective compared to masking each individual package, as is required if portions of dielectric polymer sheet 100' in Fjelstad are removed after the packages have been separated from the wafer.

Also, Appellant respectfully submits that a person of ordinary skill in the art would not have seen a benefit to removing portions of the dielectric polymer sheet after dicing the wafer in Fjelstad that would offset the advantages realized by removing portions of the dielectric polymer sheet from the package before dicing the wafer, as discussed above. Thus, Appellant respectfully submits that there is insufficient motivation to combine or benefit to be achieved by combining Fjelstad, Landi, Juskey, and Roche as suggested by the Examiner.

For the foregoing reasons, Appellant respectfully submits that, at the time the invention defined by independent claim 28 was made, the invention would not have been obvious to a person of ordinary skill in the art by Fjelstad, Landi, Juskey, and Roche, either singly or in any combination thereof. Thus, independent claim 28 is patentably distinguishable over Fjelstad, Landi, Juskey, and Roche.

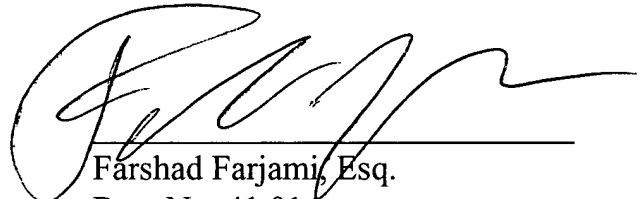
CONCLUSION

For all the foregoing reasons, Appellant respectfully submits that pending claims 1-2, 5-6, 16, and 20-27 are patentably distinguishable over Fjelstad, Landi, and Juskey, either singly or in combination, pending claims 7 and 8 are patentably distinguishable over Fjelstad, Landi, Juskey, Wyland, and Weng, either singly or in combination, and claim 28 is patentably distinguishable over Fjelstad, Landi, Juskey, and Roche, either singly or in combination. Thus, an early notice of allowance directed to claims 1-2, 5-8, 16, 17, and 20-28 remaining in the present application is respectfully requested.

This Appeal Brief is submitted herewith with an Appendix of the appealed claims and the requisite fee for filing the Appeal Brief.

Respectfully Submitted,
FARJAMI & FARJAMI LLP

Date: 2/4/08


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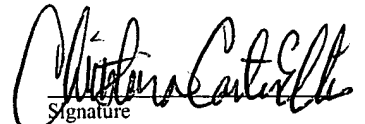
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APPENDIX OF CLAIMS ON APPEAL

Claim 1: A method for forming a package for an electronic device, said method comprising the steps of:

attaching a removable material to a surface of a conductive material, wherein said removable material comprises a soluble adhesive;

forming isolated conductive features within said conductive material;

forming a die attach pad within said conductive material;

coupling said electronic device to said die attach pad;

attaching an encapsulant to said isolated conductive features, said die attach pad, said electronic device, and said removable material; and

removing said removable material from said conductive features, said die attach pad, and said encapsulant by dissolving said soluble adhesive, thereby forming said package for said electronic device.

Claim 2: The method for forming a package for the electronic device of claim 1, wherein said forming step includes patterning a surface of said conductive material with a material resistant to an etchant and etching said conductive material with said etchant.

Claim 5: The method for forming a package for an electronic device of claim 1, further comprising the step of electrically coupling an input/output portion of the device to said isolated conductive feature.

Claim 6: The method for forming a package for the electronic device of claim 1, further comprising the step of singulating individual packaged devices.

Claim 7: The method of claim 1, wherein the removable material is water soluble adhesive.

Claim 8: The method of claim 7, wherein the removable material is removed with deionized water.

Claim 16: The method of claim 1, wherein the removable material is mold stencil that is used in said attaching encapsulant step.

Claim 17: The method of claim 1, wherein the removable material comprises a polyimide material and a water soluble adhesive.

Claim 20: The method of claim 1, wherein said conductive material comprises a metal frame.

Claim 21: The method of claim 20, wherein the metal frame comprises a leadframe.

Claim 22: The method of claim 21, wherein said die attach pad is not offset from said isolated conductive features.

Claim 23: The method of claim 21, wherein a single row of connectors is formed around a perimeter of said leadframe.

Claim 24: The method of claim 20, wherein said metal frame comprises a metal sheet.

Claim 25: The method of claim 24, wherein multiple rows of connectors are formed around a perimeter of the metal sheet.

Claim 26: The method of claim 20, wherein the removable material covers substantially the entire bottom surface of said metal frame.

Claim 27: The method of claim 1, wherein the electronic device is coupled to said die attach pad via conductive epoxy.

Claim 28: A method for forming a package for an electronic device, said method comprising the steps of:

attaching a removable material to a surface of a conductive material before one or more isolated conductive features have been formed within said conductive material, wherein said removable material comprises a soluble adhesive;

forming said isolated conductive features within said conductive material;

forming a die attach pad within said conductive material;

coupling said electronic device to said die attach pad;

attaching an encapsulant to said isolated conductive features, said die attach pad, said electronic device, and said removable material, wherein said attaching step is performed before a singulation process is performed to separate said package; and

removing said removable material from said conductive features, said die attach pad, and said encapsulant by dissolving said soluble adhesive, thereby forming said package for said electronic device, wherein the removing said removable material step is performed after the singulation process is performed to separate said package.

EVIDENCE APPENDIX

(NONE)

RELATED PROCEEDINGS APPENDIX

(NONE)